What is claimed is:

1. An ammonia decomposition catalyst comprising: as a carrier a crystalline silicate which is represented by a following formula as dehydrated:

$(1\pm0.8)R_2O\cdot[aM_2O_3\cdot bAl_2O_3]\cdot cMeO\cdot ySiO_2$,

wherein R denotes an alkaline metal ion and/or hydrogen ion, M denotes at least one element selected from the group consisting of VIII group elements, rare earth elements, titanium, vanadium, chromium, niobium, antimony, and gallium, Me denotes an alkaline earth metal, $a\geq0$, $b\geq0$, $c\geq0$, $a+b=1$, $y/c>12$ and $y>12$, and which has a X-ray diffraction pattern shown in Table 1 herein; and iridium as an active metal.

2. An ammonia decomposition catalyst comprising: as a carrier at least one porous material selected from the group consisting of γ-Al_2O_3, θ-Al_2O_3, ZrO_2, TiO_2, $TiO_2\cdot ZrO_2$, $SiO_2\cdot Al_2O_3$, $Al_2O_3\cdot TiO_2$, SO_4/ZrO_2, $SO_4/ZrO_2\cdot TiO_2$, zeolites Y, zeolites X, zeolites A, mordenites, and silicalites; and iridium as an active metal.

3. A method of decomposing ammonia using a catalyst according to Claim 1 or 2 as an ammonia decomposition catalyst wherein a gas containing ammonia is exposed to an ammonia decomposition catalyst whereby decomposing and removing the ammonia.

4. A composite ammonia decomposition catalyst comprising: a first catalyst comprising as a carrier a crystalline silicate which has a X-ray diffraction pattern shown in Table 1 herein and which is represented by the formula in the molar ratio as dehydrated:

$$(1\pm0.8)R_2O\cdot[aM_2O_3\cdot bM'O\cdot cAl_2O_3]\cdot ySiO_2,$$

wherein R denotes an alkaline metal ion and/or hydrogen ion, M denotes at least one element selected from the group consisting of VIII group elements, rare earth elements, titanium, vanadium, chromium, niobium, antimony, and gallium, M' denotes at least one element selected from the group consisting of magnesium, calcium, strontium, and barium, $a\geq0$, $20>b\geq0$, $a+c=1$, $3000>y>11$, and iridium as an active metal; and a second catalyst comprising at least one element selected from the group consisting of titanium, vanadium, tungsten, and molybdenum.

5. A composite ammonia decomposition catalyst comprising: a first catalyst comprising as a carrier at least one porous material selected from the group consisting of γ-Al_2O_3, θ-Al_2O_3, ZrO_2, TiO_2, $TiO_2\cdot ZrO_2$, $SiO_2\cdot Al_2O_3$, $Al_2O_3\cdot TiO_2$, SO_4/ZrO_2, $SO_4/ZrO_2\cdot TiO_2$, zeolites Y, zeolites X, zeolites A, mordenites, and silicalites, and iridium as an active metal; and a second catalyst comprising at least one element selected from the group consisting of titanium, vanadium, tungsten, and molybdenum.

6. An ammonia decomposition catalyst according to Claim 4 or 5 wherein particles of the first catalyst and particles of the second catalyst are carried in a form of a powder mixture on a surface of a honeycomb substrate.

7. An ammonia decomposition catalyst according to Claim 4 or 5 which is a layered catalyst comprising a honeycomb substrate, particles of the first catalyst carried as a layer on a surface of the substrate, and particles of the second catalyst carried on the layer of the first catalyst.

8. A method of decomposing ammonia using the catalyst according to Claim 4 or 5 as an ammonia decomposition catalyst wherein a gas containing ammonia is exposed to an ammonia decomposition catalyst whereby decomposing and removing the ammonia.

9. A layered ammonia decomposition catalyst comprising: a first catalyst comprising as a carrier a crystalline silicate with a X-ray diffraction pattern shown in Table 1 herein and which is represented by a following formula in terms of molar ratio as dehydrated:

$$(1\pm0.8)R_2O\cdot[aM_2O_3\cdot bM'O\cdot cAl_2O_3]\cdot ySiO_2,$$

wherein R denotes an alkaline metal ion and/or hydrogen ion, M denotes at least one element selected from the group consisting of VIII group elements, rare earth elements, titanium, vanadium, chromium, niobium, antimony, and

gallium, M' denotes at least one element selected from the group consisting of magnesium, calcium, strontium, and barium, $a \geq 0$, $20 > b \geq 0$, $a+c=1$, $3000 > y > 11$, and as an active metal at least one noble metal selected from the group consisting of platinum, palladium, rhodium, and ruthenium; and a second catalyst comprising at least one element selected from the group consisting of titanium, vanadium, tungsten, and molybdenum; wherein the second catalyst forms an overlayer covering the first catalyst.

10. A layered ammonia decomposition catalyst comprising: a first catalyst comprising as a carrier at least one porous material selected from the group consisting of γ-Al_2O_3, θ-Al_2O_3, ZrO_2, TiO_2, $TiO_2 \cdot ZrO_2$, $SiO_2 \cdot Al_2O_3$, $Al_2O_3 \cdot TiO_2$, SO_4/ZrO_2, $SO_4/ZrO_2 \cdot TiO_2$, zeolites Y, zeolites X, zeolites A, mordenites, and silicalites, and as an active metal at least one noble metal selected from the group consisting of platinum, palladium, rhodium, and ruthenium; and a second catalyst comprising at least one element selected from the group consisting of titanium, vanadium, tungsten, and molybdenum; wherein the second catalyst forms an overlayer covering the first catalyst.

11. A method of decomposing ammonia using a catalyst according to Claim 9 or 10 as an ammonia decomposition catalyst wherein a gas containing ammonia is exposed to an

ammonia decomposition catalyst whereby decomposing and removing the ammonia.